VOLUME 25 NUMBER 6 NOVEMBER–DECEMBER 2003 ISSN 1463-9246

Journal of AUTOMATED METHODS & MANAGEMENT IN CHEMISTRY

Volume 25 (2003)

EDITOR
Peter B. Stockwell
P S Analytical Ltd
Arthur House
Unit 3, Crayfields Industrial Estate
Main Road, St Pauls Cray
Orpington, Kent BR5 3HP, UK
e-mail: pbs@psanalytical.com

CLINICAL EDITOR
L. B. Roberts
Gartnavel General Hospital
1053 Great Western Road
Glasgow G12 0YN, UK
e-mail: barob@scotland.prestel.co.uk

NORTH AMERICAN EDITOR
Joe Liscouski
PO Box 458
Groton
MA 01450, USA
e-mail: JAMMC@DelphinusDesign.com

HONORARY EDITORS
R. W. Arndt
CH-8006 Zürich, Switzerland

H. W. Malmstadt
Kailua-Kona, Hawaii, USA

EDITORIAL ADVISORY BOARD

Clinical

P. A. Bonini
Laboratorio Analisi Ospedela S. Raffaele, Milan, Italy

C. A. Burtis
Oak Ridge National Laboratory, Tennessee, USA

C. Collombel
Hôpital Edouard Herriot, Lyons, France

T. D. Geary
Institute of Medical and Veterinary Science, Adelaide, Australia

R. Haeckel
Zental Krankenhaus, Bremen, Germany

It-Koon Tan
Clinical Biochemistry Laboratories, Singapore

Industrial/Institutional

A. C. Brown III
Varian Instrument Group, Walnut Creek, USA

S. R. Bysouth
Shell Development Co., Houston, USA

M. B. Denton
University of Arizona, Tucson, USA

L. Ebdon
University of Plymouth, UK

G. A. Gibbon
US Department of Energy, Pittsburgh Energy Technology Center, USA

N. Graber
Ciba-Geigy AG, Basle, Switzerland

B. Karlberg
Tecator AB, Sollentuna, Sweden

H. M. (Skip) Kingston
Duquesne University, Pittsburgh, USA

G. Knapp
University of Technology, Graz, Austria

K. K. Stewart
University of Texas, USA

C. Vandecasteele
Katholieke Universiteit Leuven, Belgium

A. P. Wade
BC Research Inc., Vancouver, Canada

SUBSCRIPTION INFORMATION

Journal of Automated Methods & Management in Chemistry **(USPS permit number 468 350)** is published bimonthly in January, March, May, July, September and November (total 6 issues) by Taylor & Francis Ltd, 4 Park Square, Milton Park, Abingdon OX14 4RN, UK. This journal is subject to a peer-review process.

Annual Institutional Subscription, Volume 25, 2003

ISSN 1463–9246 $648.00 £393.00

A subscription to the print edition includes free access for any number of concurrent users across a local area network to the online edition, ISSN 1464–5068.

For more information visit our website:

http://www.tandf.co.uk/journals/

Print subscriptions only are also available to individual subscribers, on application. Such subscriptions must be purchased with a personal cheque or personal credit card, and must be received at a personal (private) address.

Periodicals postage paid at Champlain, NY, by US Mail Agent IMS of New York, 100 Walnut Street, Champlain, NY. **US Postmaster**: Please send address changes to tAUC, PO Box 1518, Champlain, NY 12919, USA.

Dollar rates apply to subscribers in all countries except the UK and the Republic of Ireland where the pound sterling price applies. All subscriptions are payable in advance and all rates include postage. Journals are sent by air to the USA, Canada, Mexico, India, Japan and Australasia. Subscriptions are entered on an annual basis, i.e. from January to December. Payment may be made by sterling cheque, dollar cheque, international money order, National Giro, or credit card (AMEX, VISA, Mastercard). Orders originating in the following territories should be sent direct to the local distributors: *India* Universal Subscription Agency Pvt. Ltd, 101–102 Community Centre, Malviya Nagar Extn, Post Bag No. 8, Saket, New Delhi 110017; *Japan* Kinokuniya Company Ltd, Journal Department, PO Box 55, Chitose, Tokyo 156; *USA, Canada and Mexico* Taylor & Francis Inc., 325 Chestnut Street, 8th Floor, Philadelphia, PA 19106, USA; *UK and all other territories* Taylor & Francis Ltd, Rankine Road, Basingstoke, Hampshire RG24 8PR, UK.

For a complete and up-to-date guide to Taylor & Francis Group's journals and books publishing programmes, and details on advertising in our journals, visit our web site:

http://www.taylorandfrancis.com/ or http://www.tandf.co.uk

The print edition of this journal is typeset by Keyword Publishing Services, and printed on ANSI conforming acid free paper by Hobbs the Printers. The on-line edition of this journal is hosted by MetaPress at journalsonline.tandf.co.uk.

Copyright © 2003 Taylor & Francis Limited. All rights reserved. No part of this publication may be reproduced, stored, transmitted, or disseminated, in any form, or by any means, without prior written permission from Taylor & Francis Limited, to whom all requests to reproduce copyright material should be directed, in writing. Taylor & Francis Limited grants authorization for individuals to photocopy copyright material for private research use, on the sole basis that requests for such use are referred directly to the requestor's local Reproduction Rights Organization (RRO). The copyright fee is $22 exclusive of any charge or fee levied. In order to contact your local RRO, please contact: International Federation of Reproduction Rights Organisations (IFRRO), rue du Prince Royal, 87, B-1050 Brussels, Belgium, e-mail: ifrro@skynet.be; Copyright Clearance Center Inc., 222 Rosewood Drive, Danvers, MA 01923, USA, e-mail: info@copyright.com; Copyright Licensing Agency, 90 Tottenham Court Road, London W1P 0LP, UK, e-mail: cla@cla.co.uk. This authorization does not extend to any other kind of copying, by any means, in any form, and for any purpose other than private research use.

Abstracting and indexing services. *Journal of Automated Methods & Management in Chemistry* is listed in *Chemical Abstracts Service, EBSCO Publishing, Elsevier Bibliographic Data Base, INSPEC, ISI Current Contents, ISI Sciences Citation Index, New Jour, Periodicals Service Company* and *SciBase*.

Contents of Volume 25

Volume 25 Number 1 January–February 2003

Automatic flow system for simultaneous determination of iron and chromium in steel alloys employing photometers based on LEDs as radiation source — 1
R. N. Fernandes, B. F. Reis and L. F. P. Campos

Automation of dissolution tests — 7
R. Rolli

CTAD as a universal anticoagulant — 17
M. Yokota, N. Tatsumi, I. Tsuda, T. Nishioka and T. Takubo

Modelling of influential parameters on a continuous evaporation process by Doehlert shells — 21
H. Fauduet, C. Porte, J.-L. Havet and D. Daguet

Volume 25 Number 2 March–April 2003

Evaluation of the automatic ELISA Triturus analyser — 31
S. Blanco, J. Domínguez, O. Jiménez, D. Sánchez, N. Galí, L. Matas, V. Ausina and R. Galimany

Monte Carlo simulation for the prediction of precision of absorbance measurements with a miniature CCD spectrometer — 35
E. P. Tsaousoglou, S. D. Bolis and C. E. Efstathiou

High-resolution laboratory lysimeter for automated sampling of tracers through a 0.5 m soil block — 43
A. Johnson, T. J. Mathews, G. P. Matthews, D. Patel, P. J. Worsfold and K. N. Andrew

Development of a photometric system for continuous flow analysis — 51
S. S. Randhawa, B. K. S. Bansod, A. K. Singh, G. Chand and A. K. Ganju

Volume 25 Number 3 May–June 2003

Is combinatorial chemistry on the right track for drug discovery? — 57
R. A. Wildonger, T. L. Deegan and J. W. Lee

Development and implementation of industrialized, fully automated high throughput screening systems — 63
B. G. Carvalho

Gene discovery, gene expression and product manufacturing using an integrated fungal host system — 67
R. P. Burlingame

Implementation of a low-cost Interim 21CFR11 compliance solution for laboratory environments — 69
J. E. Greene

Managing smaller but flexible automation: back to the future — 73
D. J. Hook, D. M. Evans, M. Deiparine, J. Russo and C. Drabik

Volume 25 Number 4 July–August 2003

Quality control material for plasma fibrinogen test produced from purified human fibrinogen — 79
M. Okuda, Y. Uemura and N. Tatsumi

Auto-analysis system for graphite morphology of grey cast iron — 87
H. Jiang, Y. Tan, J. Lei, L. Zeng, Z. Zhang and J. Hu

Automation of a flow injection system for the determination of dissolved silver at picomolar concentrations in seawater with inductively coupled plasma mass spectrometry — 93
J. L. Barriada, J. B. Truscott and E. P. Achterberg

New products — 101

Volume 25 Number 5 September–October 2003

Proposed fibrinogen standard material with purified fibrinogen for plasma fibrinogen measurement on coagulation analyser — 103
M. Okuda, Y. Uemura, N. Tatsumi and S. Honda

Multicommuted flow system for the determination of glucose in animal blood serum exploiting enzymatic reaction and chemiluminescence detection — 109
C. K. Pires; P. B. Martelli, B. F. Reis, J. L. F. C. Lima, M. Lúcia and M. F. S. Saraiva

Application of a catalytic combustion sensor (Pellistor) for the monitoring of the explosiveness of a hydrogen–air mixture in the upper explosive limit range — 115
M. Krawczyk and J. Namiesnik

Volume 25 Number 6 November–December 2003

Statistical method for the determination of equivalence of automated test procedures — 123
K. R. Lung, M. A. Gorko, J. Llewelyn and N. Wiggins

Development of a heating reactor for a continuous flow-through application in urea measurement — 129
S. S. Randhawa, A. K. Ganju and R. P. Bajpai

LabVIEW-based sequential-injection analysis system for the determination of trace metals by square-wave anodic and adsorptive stripping voltammetry on mercury-film electrodes — 133
A. Economou and A. Voulgaropoulos

Automated analyser for monitoring the contents of hydrocarbons in gas emitted from exploratory bore-holes in the gas and oil industry — 141
W. Janicki, W. Chrzanowski, P. Zwan and J. Namieśnik

Book Review — 149
P. B. Stockwell